

CLAIMS

We claim:

1. A method for generating mammalian neural crest stem cells comprising inducing neuroepithelial stem cells to differentiate in vitro, thereby generating said neural crest stem cells..

2. The method of claim 1 wherein said inducing comprises replating said neuroepithelial stem cells on a laminin-coated substrate.

3. The method of claim 2 wherein said inducing further comprises withdrawing a mitogen.

4. The method of claim 3 wherein said mitogen is FGF.

5. The method of claim 2 wherein said inducing further comprises withdrawing chick embryo extract.

6. The method of claim 1 wherein said inducing comprises withdrawing a mitogen.

7. The method of claim 6 wherein said mitogen is FGF.

8. The method of claim 1 wherein said inducing comprises withdrawing chick embryo extract.

to the cells.

9.

The method of claim 1 wherein said inducing comprises adding a dorsalizing agent

to the cells.

10.

10. The method of claim 9 wherein said dorsalizing agent is a member selected from the group consisting of bone morphogenetic proteins.

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11.

The method of claim 10 wherein said dorsalizing agent is BMP-2.

12.

The method of claim 10 wherein said dorsalizing agent is BMP-4.

13.

The method of claim 10 wherein said dorsalizing agent is BMP-7.

14.

14. A method of generating cells of the peripheral nervous system comprising the steps of:

(a)

(a) inducing neuroepithelial stem cells to differentiate in vitro, thereby generating neural crest stem cells;

(b)

(b) inducing said neural crest stem cells to differentiate in vitro, thereby generating peripheral nervous system cells.